

NewLife *Accelerator!*

SE Version
Classic Version

**User guide and
installation manual**

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This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of the FCC Rules, which are designed to provide reasonable protection in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case, the user, at his own expense, will be required to take whatever measures may be necessary to correct the interference.

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Before You Start!

Please read this manual
before you install your NewLife board.

It provides important safety procedures
and describes the recommended
installation steps.

The following symbols are used in this manual to indicate
important items:



WARNING!

A life-threatening situation. Serious injury or death can result
if the hazard is ignored.



CAUTION!

Static discharge can damage equipment.



NOTE:

Failure to follow instructions can result in equipment damage
or malfunction.

The NewLife Accelerator!

Congratulations!

We're glad you've chosen to give NewLife™ to your Mac with a NewLife Accelerator!. We're sure you'll be pleased with the improved performance and capabilities of your enhanced Mac.

There are two versions of the NewLife Accelerator!. One is designed specifically for the Mac Classic. The other is designed for the Mac SE.

With the NewLife Accelerator! you can run applications that require more processor speed or memory, and you can use fast SCSI hard disks to quickly access large amounts of data. NewLife Accelerator! really does give a new life to your old Mac and allows you to stay productive in today's rapidly changing software environment.

NewLife Accelerator! features and benefits

- NewLife Accelerator! SE is installed by simply plugging the board into the SE expansion connector.
- NewLife Accelerator! Classic is installed using a snap on clip over the Macintosh 68000 CPU.
- NewLife Accelerator! features a flexible memory expansion structure using SIMM technology. You can use either 1MB or 4MB SIMMs to provide either 4MB or 16MB of system memory.
- NewLife Accelerator! supports virtual memory through "Virtual™" by Connectix.
- NewLife Accelerator! is compatible with Apple's System 7.
- NewLife Accelerator! is powered by a 68030 CPU and 68882 FPU co-processor pair for lightning fast operation.
- NewLife Accelerator! gives you the performance needed to run powerful programs like MacDraw, Illustrator, Freehand, Excel, Wingz, Word, WordPerfect, Quark XPress, and PageMaker.

About this manual



This manual gives you step by step instructions to install, configure and use the **NewLife Accelerator!**.

Some of the steps are potentially life-threatening to you, and hazardous to your Mac. We recommend that you have the installation done by your dealer's qualified service technician.

If you wish to install the **NewLife Accelerator!** yourself, *read the safety precautions in part 2.*

part 3 of this manual contains the installation steps for the **NewLife Accelerator!** Classic on a Mac Classic.

part 4 contains the installation steps for the **NewLife Accelerator!** SE on a Mac SE.

part 5 describes the installation and configuration of the **NewLife Accelerator!** CDEV control software.

If you follow the steps carefully, you shouldn't have any problems with your new **NewLife Accelerator!** but just in case you do, part 6 contains some useful hints to get you back on track.



Micron SIMMs are not compatible with NewLife products. Do not use Micron SIMMs. To determine if you have Micron SIMMs, you have to look at the chips themselves, not the printed circuit board. Micron marks their chips the following three different ways: MICRON, MT, or MAG. NMB SIMMs are not compatible with the NewLife Accelerator! It is also recommended that all four SIMMs used be of the same speed, 80ns or faster, and manufacturer.

part 2

Preparation and Safety Precautions

Prepare your work place



Static electricity can severely damage your Macintosh or the NewLife Accelerator! board.

To prevent static damage, take the following precautions:

- Place a grounded antistatic mat on your workbench.
- Wear a conductive wrist strap connected to the mat.

Gather the tools you will need

- CRT discharge tool
- Macintosh case opening tool or equivalent (also known as the pull-apart tool)
- 12-inch T-15 Torx screwdriver or equivalent
- Safety goggles
- Regular flat-blade screwdriver
- Antistatic wrist strap
- Soft cloth or foam pad
- Cotton swabs and alcohol (for Classic)
- Phillips screwdriver (for Classic)
- Small adjustable wrench, or a set of nut drivers (for Classic)

Check the package contents

If you have purchased the **NewLife Accelerator! Classic** version the package should contain:

- **NewLife Accelerator! Classic** board.
- 3.5 inch diskette with control software
- User Guide & Installation Manual (this book)
- ELCO power supply (With mounting hardware attached)
- Warranty card
- Inquiry card
- Killy clip installation tool
- three nylon standoffs
- five nylon screws

If you have purchased the **NewLife Accelerator! SE Version** the package should contain:

- **NewLife Accelerator! SE** board
- 3.5 inch diskette with control software
- User Guide & Installation Manual (this book)
- Warranty card
- Inquiry card
- two nylon standoffs
- four nylon screws

Understand the hazards

WARNING!



Macintosh computers contain high voltages and a high vacuum picture tube. Both can cause serious personal injury and property damage. This equipment should only be installed by a qualified technician.

Serious injury or death may result from improper handling of the interior components of the Macintosh.

DO NOT attempt this installation unless you are completely familiar with the methods for preventing electrical discharge and shock.

Always unplug the Macintosh

Make sure that the Macintosh is disconnected from AC power. Working within the Macintosh computer requires skill and expertise to prevent electrical discharge and shock, even when the Macintosh has been disconnected from its power source.

Discharge the CRT anode



The CRT anode can have extremely high voltages present (12,000 volts). Follow the steps specified in the Macintosh Technical Procedures manual to discharge the CRT anode. For your convenience, we have summarized the basic instructions in Parts 3 and 4 Step 1. Consult the original Macintosh documentation for all of the details.

Handle the CRT with care



The CRT contains a high vacuum — if it is cracked or broken, it can violently implode causing serious injury. Handle the CRT with care. Always wear safety glasses when the case is open.

Installing the NewLife Accelerator! Classic Version

Orienting the NewLife Accelerator! Classic Version

Figure 1 is a simplified top view of NewLife Accelerator! It shows the relative locations of the SIMM sockets, the 68 pin CPU connector and the power connector.

This diagram does not show all of the components on the board, it is supplied to help you orient the board.

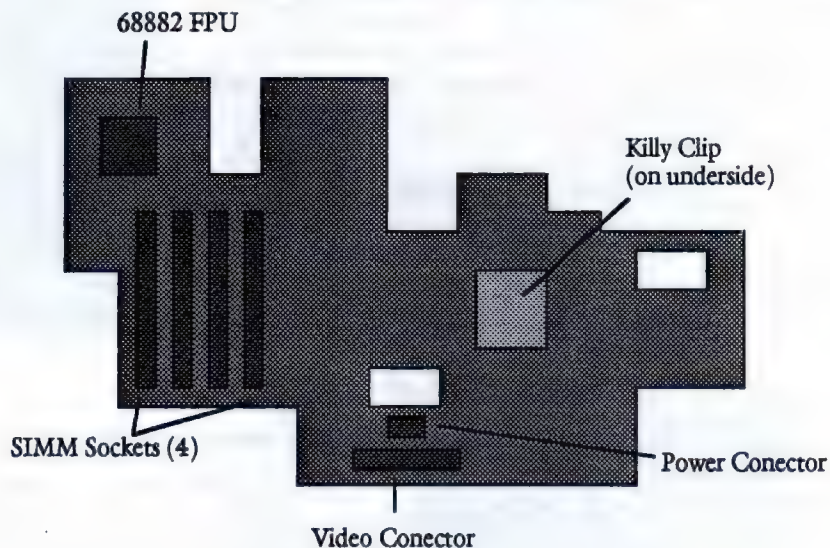


Figure 1 : Simplified top view of NewLife Accelerator! Classic

Five easy installation steps

- You install the NewLife Accelerator! Classic in five easy steps:
- Step one: **Open the Macintosh case; remove the motherboard.**
 - Step two: **Install the memory.**
 - Step three: **Attach the NewLife Accelerator! Classic to the Macintosh motherboard.**
 - Step four: **Install the power supply kit.**
 - Step five: **Replace the Macintosh motherboard and close up the case.**

Step one

Remove the Macintosh motherboard

To open the Macintosh Classic case:

1. Turn off the power and disconnect the AC power cord from the source and from the back of the computer.
2. Disconnect all external cables from the back of the computer.
3. To avoid scratching the bezel, place the computer face down on a soft cloth or foam pad.
4. Use a Torx screwdriver to remove the four screws from the back of the Mac. Note that the upper screws are silver and the lower ones are black.

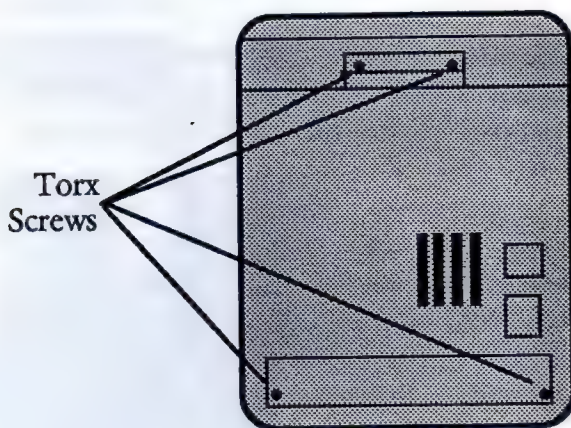


Figure 2: The back of the Macintosh

5. Use the pull-apart tool to gently pry the cover loose. Carefully lift up the cover and set it aside;
The CRT picture tube is now exposed — be careful!
6. Stand the Macintosh back up to its normal position.



WARNING!

The following procedure is dangerous, a serious shock hazard exists!

To discharge the CRT anode:

1. Remove your grounding wrist strap, if you have it on. Remove any jewelry you are wearing. Put on your safety goggles.
2. Attach the alligator clip of the CRT discharge tool to the metal part of the ground lug exactly as shown in Figure 3; *Do not clip onto the chassis.*
3. Put one hand behind your back or in your pocket. Grasp the insulated handle of the CRT discharge tool with your free hand. Hold the CRT discharge tool against the side of the CRT and insert it under the anode cap, until it touches the anode ring. A crackle or spark may be generated.
4. Remove the CRT discharge tool from under the anode cap. You may wish to repeat step three, to be sure the CRT is discharged.
5. Remove the alligator clip from the ground lug.

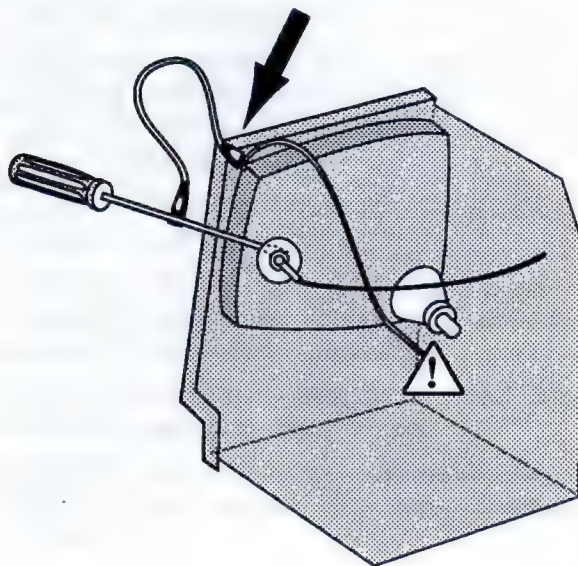


Figure 3 : Discharging the CRT anode



To remove the Macintosh motherboard:

1. *To prevent static damage to your Mac or NewLife Accelerator!, put on your antistatic wrist strap and perform this operation on your antistatic mat.*
2. Locate the motherboard. It is on the bottom side of the Mac. You must detach the connectors from the motherboard before it will slide out of the case.

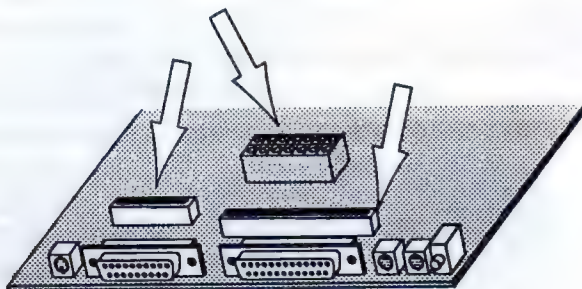


Figure 4 : Motherboard connectors for Mac Classic

3. To unplug the power/video connector, press the release lever, grasp the wire bundle and gently pull it away from the board. Care must be taken as the connection may release suddenly causing your hand to strike the CRT neck, breaking the vacuum seal.
4. To unplug the SCSI cable and the internal floppy drive connector, grasp the ribbon cable assemblies and gently pull them out of their sockets on the board using a rocking motion.
5. Be sure to remove the memory card, that may be installed, from the memory expansion slot on the motherboard.
6. Lay the Mac face down (on your foam pad) and slide the motherboard up and out of the case.
7. Put the Mac aside in a safe location, and place the motherboard on your antistatic mat.

Step two

Install memory on NewLife board

The NewLife board can be configured with 4MB of RAM using four 1MB SIMMs or with 16MB of RAM using four 4MB SIMMs. You must fill all four SIMM sockets.

The NewLife Accelerator automatically adjusts to the amount of memory that you install on the board. There are no jumpers to adjust.

To install the memory:

1. Place the NewLife board on your antistatic mat.
2. Install the SIMMs. **Because the SIMM sockets are slanted, you must fill them starting at the center of the board, working towards the outer edge.**
3. Make sure that all of the modules are firmly seated in their sockets.

Step three

Attaching to the Macintosh motherboard

To install the NewLife board:

1. Place the Classic motherboard on a firm, flat surface.
2. Locate the three holes in the NewLife *Accelerator!* for the standoffs. Attach the standoffs to the NewLife board.
3. Insert the four legs of the Killy clip installation tool in the four holes above the Killy clip on the NewLife *Accelerator!* Push down on the Killy clip installation tool until it is firmly seated in the socket.
4. Position the NewLife board on top of the Classic board as shown in Figure 5.
5. Carefully push down on both the insertion tool and the NewLife board until the Killy clip snaps down onto the 68000 CPU on the Mac motherboard.
6. Inspect the assembly to make sure the NewLife board is completely seated and properly aligned.
7. Attach the Macintosh motherboard to the standoffs. See figure 6. **Note:** only two of the standoffs attach to the motherboard.

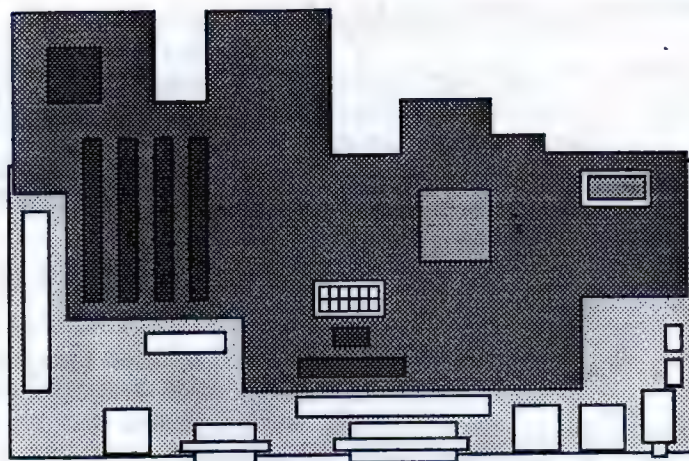


Figure 5 : Positioning the NewLife Accelerator! Classic on the Mac motherboard

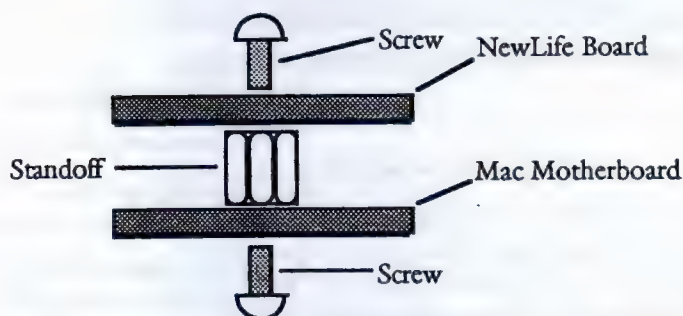


Figure 6: Standoff installation - edge view

Step four Installing the power supply

1. Attach the two yellow clips to resistor RP46 on the Mac power supply as shown in Figure 7.

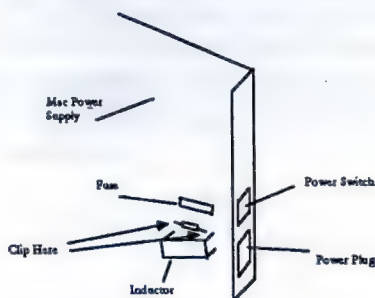


Figure 7 :clip position

If you are installing a NewLife *Accelerator!* Classic onto a Mac power supply that does not have resistor RP46, then you must attach the two yellow clips to the middle two pins of DP9, as shown in figure 8

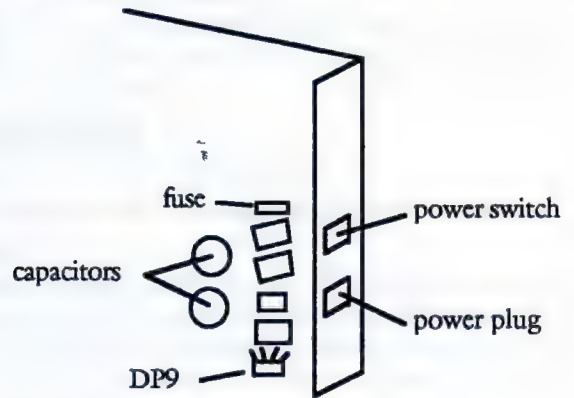


Figure 8: Position of DP9

For the TDK model FMP5-2K power supply

2. Position the power supply in the Mac chassis with the bracket studs passing through the chassis holes as shown in Figure 9.

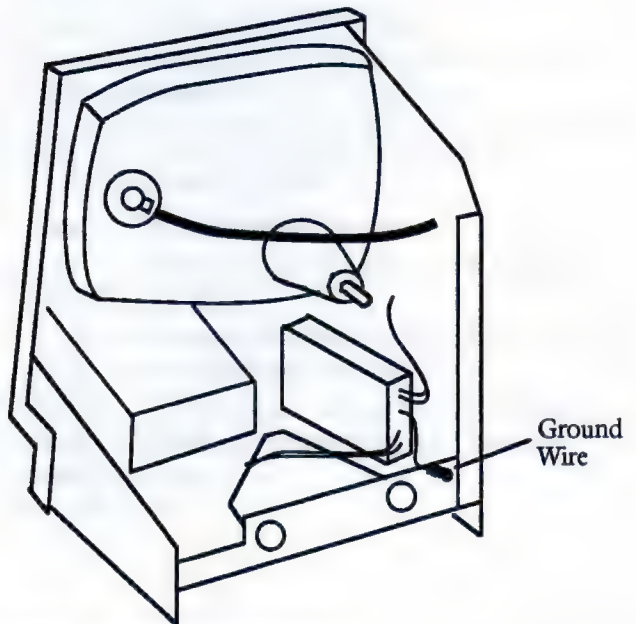


Figure 9: Power supply positioning

3. Put a flat washer, a lock washer and then a nut on each stud to secure the power supply. As shown in figure 10.

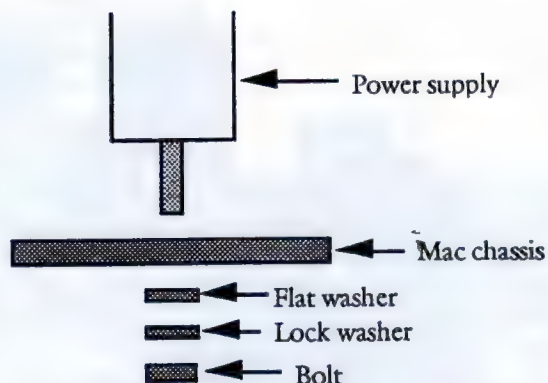


Figure 10 : Power supply installation - edge view

4. Attach the green ground wire to the chassis screw shown in Figure 7

For ELCO model K10AU-5 power supply

2. Lay the Mac face down on the foam pad with the bottom facing you. Place the supply with the screw holes positioned behind the two slots in the chassis which are furthest to the left. See figure 11.

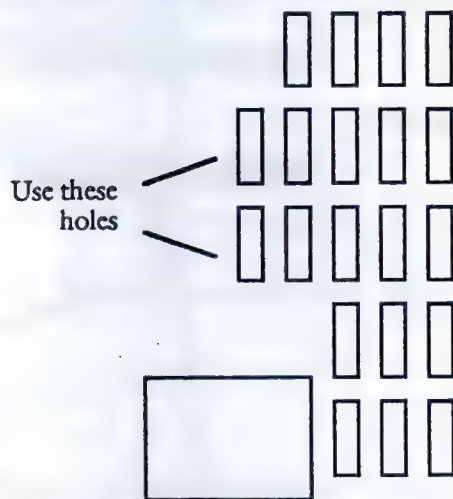


Figure 11 : Bottom view of chassis

3. Put a lock washer then a flat washer on each screw and secure the supply in place.

Step five

Replacing the motherboard in the Macintosh

When you removed the motherboard, you slid it out of the metal guides towards the back of the Macintosh. *With the NewLife board attached, the assembly is too high to slide directly back into the Macintosh.*

To replace the motherboard:

- 1 Lay the Mac face down on the foam pad with the bottom facing you.
2. With the NewLife board attached, the assembly is too high too slide directly back into the Macintosh. Very carefully slide the motherboard through the chassis from the bottom of the Mac up through the opening at the back; until the NewLife *Accelerator!* is clear of the fan bracket. Be careful no to damage the SIMMs on the NewLife board or the components on the bottom of the Mac Motherboard
3. Use one hand to gently spread one side of the metal chassis open and the other to push the edge of the NewLife board pass the metal guide. Do not place the motherboard in the guides at this point.
4. Repeat for the other side of the chassis.
5. Slide the assembly into the Mac until the video connector on the NewLife board is clear of the chassis.
6. Use one hand to gently spread one side of the metal chassis open and the other to push the edge of the Mac motherboard into the guide.
7. Repeat for the other side of the chassis.
8. Slide the motherboard into the Mac so that it is seated firmly in the guides.
9. Re-attach the internal floppy drive ribbon cable, the SCSI ribbon cable and the power harness.
10. Plug the two pin connector attached to the red and black wires on the power supply into the power connector on the newlife *Accelerator!*

part 4

Installing the NewLife Accelerator! SE on the Mac SE

Orienting the NewLife Accelerator! for the Mac SE

Figure 12 is a simplified top view of the NewLife Accelerator! for the Mac SE. It shows the relative locations of the SIMM sockets, and the flow-through connector for the SE bus.

This diagram does not show all of the components on the board — it is supplied to help you orient the board.

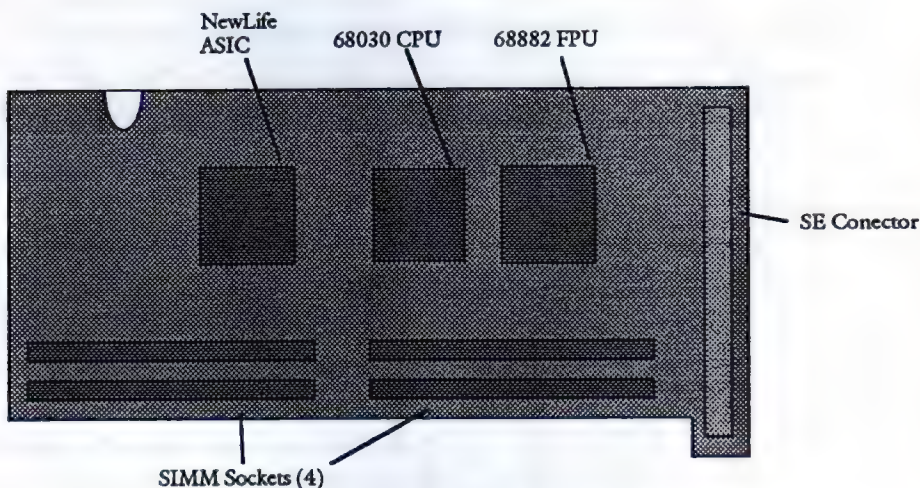


Figure 12 : Simplified top view of NewLife Accelerator for the SE

Four easy installation steps

You install the NewLife Accelerator! in four easy steps:

- Step one: Remove the Macintosh motherboard.
- Step two: Install the memory.
- Step three: Attach the NewLife Accelerator! to the Macintosh motherboard.
- Step four: Replace the Macintosh motherboard and close up the case.

Step one: Remove the Macintosh motherboard

To open the Macintosh SE case:

1. Turn off the power and disconnect the AC power cord from the source and from the back of the computer.
2. Disconnect the mouse, keyboard, and all other external cables from the back of the computer.
3. Remove the reset/interrupt switch (if installed) from the side of the case by prying it off with a small flat-blade screwdriver.

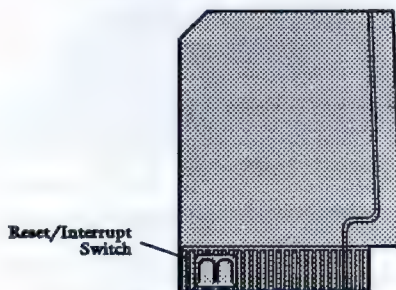


Figure 13 : The reset/interrupt switch

4. To avoid scratching the bezel, place the computer face down on a soft cloth or foam pad.
5. Use a Torx screwdriver to remove the four screws from the back of the Mac. Note that the upper screws are silver and the lower ones are black.

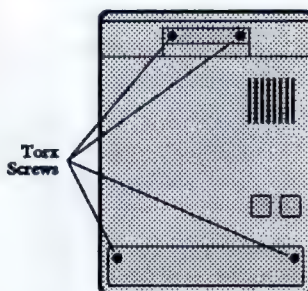


Figure 14 : The back of the Macintosh SE

6. Use the pull-apart tool to gently pry the cover loose. Carefully lift up the cover and set it aside. *The CRT picture tube is now exposed — be careful!*
7. Stand the Macintosh back up to its normal position.



WARNING!

The following procedure is dangerous, a serious shock hazard exists!

To discharge the CRT anode:

1. Remove your grounding wrist strap, if you have it on. Remove any jewelry you are wearing. Put on your safety goggles.
2. Attach the alligator clip of the CRT discharge tool to the metal part of the ground lug exactly as shown in Figure 15. *Do not clip onto the chassis.*
3. Put one hand behind your back or in your pocket. Grasp the insulated handle of the CRT discharge tool with your free hand. Hold the CRT discharge tool against the side of the CRT and insert it under the anode cap, until it touches the anode ring. A crackle or spark may be generated.
4. Remove the CRT discharge tool from under the anode cap. You may wish to repeat step three, to be sure the CRT is discharged.
5. Remove the alligator clip from the ground lug.

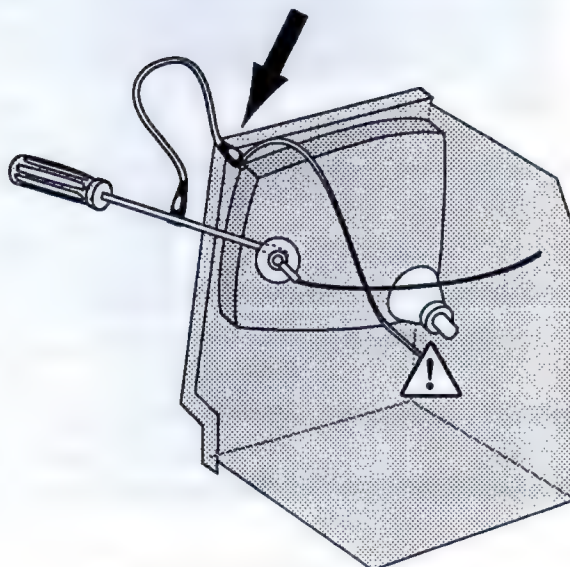


Figure 15 : Discharging the CRT anode



To remove the Macintosh motherboard:

1. *To prevent static damage to your Mac or NewLife Accelerator!, put on your antistatic wrist strap and perform this operation on your antistatic mat.*
2. Locate the motherboard. It is on the bottom side of the Mac. You must detach the connectors from the motherboard before it will slide out of the case.

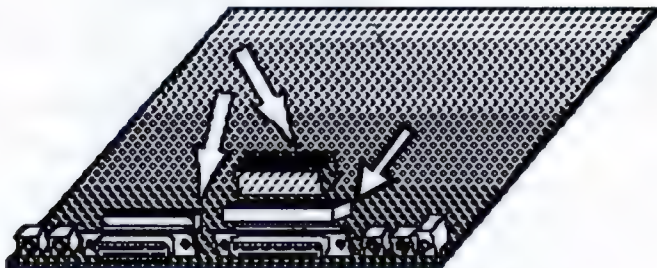


Figure 16 : Motherboard connectors for Mac SE

3. To unplug the power/video connector, press the release lever, grasp the wire bundle and gently pull it away from the board. Care must be taken as the connection may release suddenly causing your hand to strike the CRT neck, breaking the vacuum seal.
4. To unplug the SCSI cable and the internal floppy drive connector, grasp the ribbon cable and gently pull it out of the socket on the board using a gentle rocking motion.
5. Be sure to remove any third party boards, that may be installed, from the 96 pin expansion connector on the motherboard.
6. Lay the Mac face down on your foam pad. You will see that the right edge of the motherboard is notched and the left edge is smooth. Holding the board by the edges, slide it up until the tabs on the right edge of the board exactly match the notches in the right metal bracket. Swing the right edge of the board free of the metal bracket and lift the board out of the chassis. To prevent damage to the speaker wire and connector, disconnect the speaker wire from the motherboard before completely removing the motherboard.
7. Put the Mac aside in a safe location, and place the motherboard on your antistatic mat.

Step two

Install memory on NewLife board

The NewLife board can be configured with 4MB of RAM using four 1MB SIMMs or with 16MB of RAM using four 4MB SIMMs. You must fill all four SIMM sockets. The SIMMs must be 80ns or faster.

The NewLife Accelerator automatically adjusts to the amount of memory that you install on the board. There are no jumpers to adjust.

To install the memory:

1. Place the NewLife board on your antistatic mat.
2. Install the SIMMs. Because the SIMM sockets are slanted, you must fill them starting at the outer edge of the board, working towards the center.
3. Make sure that all of the modules are firmly seated in their sockets.

Step three

Attaching to the Macintosh motherboard

You install the NewLife Accelerator! board on top of the Macintosh motherboard — as shown in Figure 17. The 96-pin connector on the bottom of the NewLife board attaches to the Mac SE expansion connector.

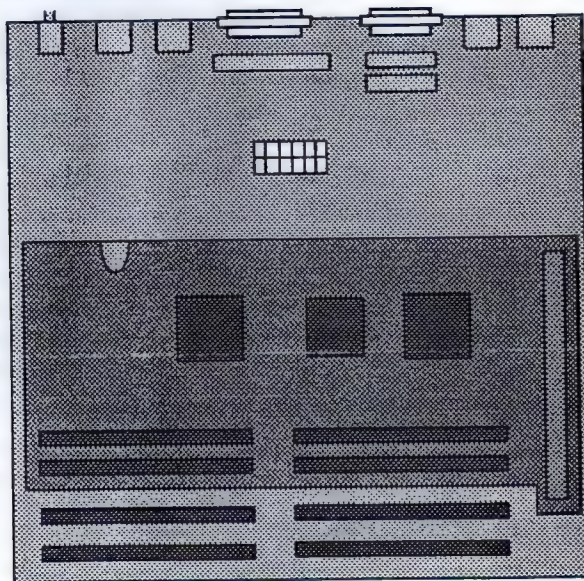


Figure 17: Positioning the NewLife Accelerator! on the Mac motherboard

1. Locate the two holes in the NewLife *Accelerator!* for the standoffs. Attach the standoffs to the NewLife board.
2. Position the NewLife *Accelerator!* board above the Macintosh motherboard as shown in Figure 17. Before you apply any pressure, look between the two boards and make sure all of the pins are aligned with the socket.



CAUTION:

Align all of the pins with their correct socket positions before applying pressure. If the pins and socket are misaligned you can severely damage the board and pins and void your NewLife warranty.

3. Place the entire assembly on your antistatic mat and apply pressure to the NewLife *Accelerator!* board — *but only above the socket location*. After the pins are seated in the socket, inspect the assembly to make sure the NewLife *Accelerator!* board is completely seated and properly aligned.
4. Attach the standoffs to the motherboard. As illustrated in figure 18

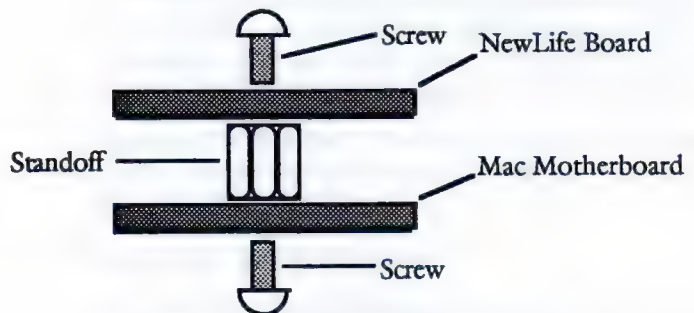


Figure 18 : Standoff installation - edge view

Step four

Replacing the motherboard in the Macintosh

When you removed the motherboard, you slid it out of the metal guides towards the back of the Macintosh. *With the NewLife board attached, the assembly is too high to slide back into the Macintosh.*

To replace the motherboard:

1. Lay the Mac face down on the foam pad with the bottom facing you.
2. Bring the motherboard close to the chassis and re-attach the speaker wire.

3. Place one edge of the motherboard in the metal guides about half an inch behind the plastic front cover.
4. Fit the smooth edge of the motherboard into the slot in the metal frame. Exactly align the tabs on the right edge of the board with the notches on the right metal bracket, and settle the right edge of the board into the right metal bracket. Slide the board down until you hear it click into place.
5. Re-attach the internal floppy drive ribbon cable, SCSI ribbon cable and the power/video cable. The power/video cable connector is keyed to prevent improper installation.
6. Close up the Mac case. Note that the upper screws are silver and the lower ones are black.

Booting in 68000 mode

With a *NewLife Accelerator!* installed, your Macintosh will normally start up with the Accelerator's 68030 microprocessor active. If you need to switch back to the original 68000 microprocessor, you can do so if you have the programmer's switch installed on the left side of your Macintosh. This temporarily disables the NewLife Accelerator and any memory installed on the Accelerator Card. The easiest way is as follows:

1. Make sure you have the Programmer's Switch installed on the side of your Macintosh.
2. Start up your Macintosh as usual. When the Finder desktop appears, go to the Special Pull Down Menu and select Shut Down. The Dialog Box "You may now switch off your Macintosh safely" will appear. Do not press the Restart Button, do not switch off your Macintosh.
3. Press both of the buttons on the Programmers Switch at the same time. Release the Reset button, the one closest to the front of your Macintosh while keeping the Interrupt button, the one closet to the rear of your Macintosh, pressed.
4. As soon as you hear your Macintosh generate the Standard "Beep" sound, release the Interrupt button.

Restarting with the NewLife Accelerator in 68030 mode

Simply restart your Macintosh via the Shut Down or Restart options available under the Special Menu on the Finder desktop.

Installing the Control Software

The Accelerator operates correctly without any additional software. To optimize performance for the Motorola 68030 Microprocessor and the optional Motorola 68882 Floating Point Co-Processor, some special start up software is required.

The supplied floppy disk of software contains files for your System Folder and other Utilities. If you are using variations of System 6.0, then copy the files from the folder on the supplied floppy disk named "For your system folder" to your System folder. If you are using System 7.0, then copy the files in the folder, "For your system folder" into your System Folder Control Panel folder.

We have included a copy of Speedometer™ on the support disk. This is a shareware program, it is not free. If you like this program and plan to use it, please send \$25.00 to Scott Berfield at the address indicated in the program.

SANE Patches

One of the features of the software supplied with the accelerator is that it optionally enhances the SANE routines. SANE (Standard Apple Numeric Environment) provides mathematical routines for Application Programs. The SANE patches use the Motorola 68882 Floating Point Co-Processor to accelerate the mathematical routines. These routines can be optionally enabled or disabled from the Control Panel.

Additional Features

Additional features are documented with each release of the supplied software on the floppy disk. Please consult the Release Notes for the software on the floppy disk.

Troubleshooting

Although the **NewLife Accelerator!** is a complex piece of electronic hardware, it has been manufactured with great skill and care. In the unlikely event that you encounter a problem, follow these steps:

1. *Note that some INITs can conflict with application programs and produce intermittent system failures.* Verify that this type of software conflict is not the problem before you open up the Mac to check the hardware connections inside.
2. Micron SIMMs are not compatible with NewLife products. Do not use Micron SIMMs. To determine if you have Micron SIMMs, you have to look at the chips themselves, not the printed circuit board. Micron marks their chips the following three different ways: MICRON, MT, or MAG. NMB SIMMs are not compatible with the NewLife **Accelerator!**
3. To ensure reliable operation of the NewLife **Accelerator!** it is recommended that all four SIMMs be of the same speed, 80ns or faster, and manufacturer.
4. The sound will be slightly distorted. This will be fixed shortly with a software upgrade. Please send in your warranty card so that the upgrade can be mailed to you.
4. Scan the symptoms described in the **Troubleshooting Guide** (on the following pages) to identify the problem.
5. Follow the steps in the **Troubleshooting Guide** to remedy the problem and then test your system. *If the remedy requires you to open the Mac case, observe the safety precautions described in part 2 of this manual.* Always discharge the CRT after opening the Macintosh case. With the NewLife board installed, the motherboard will not slide out. Remove with care.
7. If you are still experiencing problems, or if the instructions in the **Troubleshooting Guide** tell you to do so, contact your dealer or the NewLife Computer technical support group for assistance.

For technical support call:

1 (800) 663-6395

Monday to Friday,

from 09:00 to 5:00 Eastern Time

Fax: (613) 592-9738

Troubleshooting Guide

Symptom

On power up, nothing happens or screen is blank

Possible Problem and Suggested Remedy

- **No power.** Plug computer into a live outlet and turn it on.
- **Power connector.** Open the Macintosh and ensure that the power/video connector is attached and firmly seated to the motherboard.

Symptom

Checkerboard pattern or vertical lines observed on power up

Possible Problem and Suggested Remedy

- **Bent pin.** Remove board and check for bent pins. Straighten bent pins and carefully reseat socket.
- **SE logic board memory.** The Mac SE logic board requires a minimum of 512K to operate. Do not remove all the memory from your logic board. This memory is needed for the Mac video circuits on the logic board. Any additional memory on the logic board can be used as a RAM disk when the software becomes available. If you change the amount of memory on your Mac logic board, be sure to adjust the memory jumper/resistor setting on the logic board as per Apple's instructions.

Symptom

Wavering vertical lines observed after power up

Possible Problem and Suggested Remedy

- **Power supply is not properly connected.** Verify that power supply cable are correctly connected.

Troubleshooting Guide

Symptom **Sad Mac on power up**

Possible Problem and Suggested Remedy

- **Incorrect memory speed on NewLife board.** Verify that memory on the NewLife board is the same speed, 80ns or faster, and manufacturer;
- **Incorrect SIMM memory size on NewLife board.** All SIMMS must either be **either** 1MB or 4MB SIMMs. They cannot be mixed.
- **Defective SIMM module(s).** Check the two items above. If Sad Mac still appears on power up, one or more of the SIMMs are defective. Contact your dealer for replacements.
- **SE logic board memory.** The Mac SE logic board requires a minimum of 512K to operate. Do not remove all the memory from your logic board. This memory is needed for the Mac video circuits on the logic board. Any additional memory on the logic board can be used as a RAM disk when the software becomes available. If you change the amount of memory on your Mac logic board, be sure to adjust the memory jumper/resistor setting on the logic board as per Apple's instructions.

Symptom **Intermittent Sad Mac or system bomb during operation**

Possible Problem and Suggested Remedy

- **See INIT warning at the beginning of this section.**
- **Intermittent connection between NewLife Accelerator! and Mac CPU.** See remedies under 'Checkerboard pattern' symptom.
- **Intermittent power connection.** Reseat power supply connector.

NewLife Accelerator! Technical Specifications

System Requirements

- Mac SE or Mac Classic

Hardware

- CMOS 68030 CPU
- CMOS 68882 numeric co-processor

Power

- SE: Mac internal power supply
- Classic : Additional internal power supply
- Voltage Required: $5\text{ V} \pm 10\%$
- Power Consumption : Max 5.0 Watts with four 1MB SIMM.

Software controls

- CDEV to select processor options

Environmental

- Operating temperature: 10° to 40°C , 50° to 104°F
- Storage temperature: -40° to 50°C , -40° to 122°F
- Humidity: 5% to 90% RH non-condensing

Compatibility

Compatible with SCSI peripherals, LaserWriter, AppleTalk and with standard Macintosh software. For supplementary information, contact your dealer or NewLife Computer Corp. technical support group.

The NewLife product family

Whether you need a SCSI port, more memory, a larger monitor or massive computing power, NewLife has a product for your Mac. Brief descriptions of the NewLife products are provided below. If you require more information, please see your local dealer or contact us directly.

NewLife 1 Designed for the 128K, 512K and 512Kc Macs, NewLife 1 provides a SCSI port, a flexible memory upgrade to 4MB using 256KB or 1MB SIMMs (or both) with the overall performance of a Mac SE.

NewLife 2 NewLife 2 includes all the features and capabilities of NewLife 1 and adds a versatile video adapter. It uses a configurable DB-9 TTL PC compatible video connector, so you can attach a variety of large monochrome monitors (including multiscanning types) to increase your viewing window size.

NewLife 33 Designed for the Mac SE, NewLife 33 is the upgrade for those who need the ultimate in computing power. This board features a 68030 CPU and a 68882 FPU running at a blazingly fast 33 MHz. Four SIMM sockets allow 4MB or 16 MB of memory expansion. NewLife 33 is easy to install, it attaches directly to the SE bus connector. NewLife 33 also offers a flow-through bus expansion connector should you wish to add the NewLife Video board or some other third party board.

NewLife Video NewLife Video for the Mac SE provides a flexible, low-cost solution that allows you to add a larger monitor to your SE system. NewLife Video incorporates a custom video controller ASIC. It can use many of the inexpensive third party monochrome monitors available today, including multiscanning monitors. NewLife Video connects directly to the SE bus and comes complete with software that lets you configure the monitor and screen attributes. Of course, NewLife Video is completely compatible with NewLife 33 and NewLife *Accelerator!* SE, and the two make a powerful, productive team.